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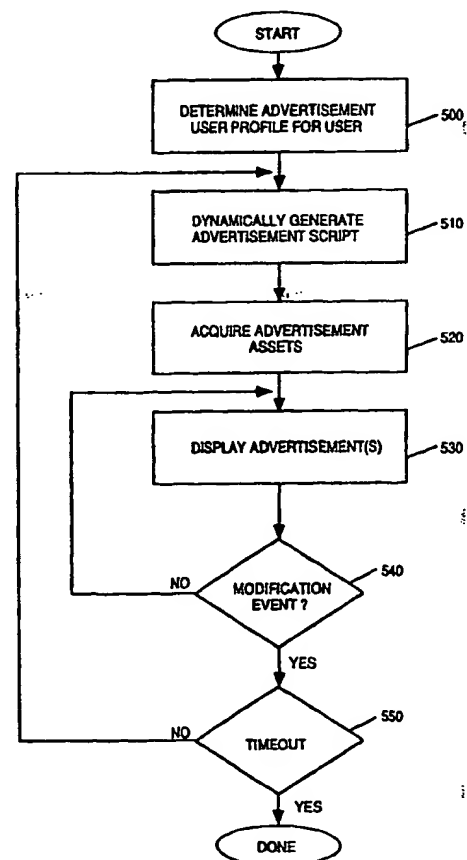


## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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<b>(21) International Application Number:</b> PCT/US99/30529 <b>(22) International Filing Date:</b> 20 December 1999 (20.12.99) <b>(30) Priority Data:</b> 09/227,476 8 January 1999 (08.01.99) US <b>(71) Applicant (for all designated States except US):</b> ZAP ME! [US/US]; Suite 150, 3000 Executive Parkway, San Ramon, CA 94583 (US). <b>(72) Inventors; and</b> <b>(75) Inventors/Applicants (for US only):</b> MARKS, Joshua, K. [US/US]; 3340 Whimbrel Court, Fremont, CA 94555 (US). STRASNICK, Steve, L. [US/US]; Unit #15, 366 Sierra Vista Avenue, Mountain View, CA 94043 (US). MORTENSEN, Lance, H. [US/US]; 117 Warwick Court, Alamo, CA 94507 (US). <b>(74) Agents:</b> MILLIKEN, Darrén, J. et al.; Blakely, Sokoloff, Taylor & Zafman LLP, 7th floor, 12400 Wilshire Boulevard, Los Angeles, CA 90025 (US).		<b>(81) Designated States:</b> AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).  <b>Published</b> <i>With international search report.</i>

**(54) Title:** MICRO-TARGETED ADVERTISING**(57) Abstract**

A method and apparatus for micro-targeted advertising is disclosed that provides micro-targeting advertising to users of a networked devices. The advertising possibilities provided by the present invention are referred to as "micro-targeted" because the architecture of the present invention allows for targeting advertising more narrowly, and therefore more effectively, than the prior art. In addition, the invention describes a system that is distributed and script based rather than transaction based as in the prior art. In one embodiment, advertising scripts are dynamically generated (510) based on information related to the specific user of specific network device (e.g., terminal workstation). By determining an advertising audience on a user-by-user basis, the architecture of the present invention provides selective targeting of advertising content.



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## MICRO-TARGETED ADVERTISING

### FIELD OF THE INVENTION

The present invention relates to advertising using networked devices. More particularly, the present invention relates to dynamic micro-targeted advertising to users of networked devices.

### BACKGROUND OF THE INVENTION

Typical advertisements take the form of broadcast advertisements. In other words individual advertisements (i.e., spots) are broadcast to multiple users/viewers/locations. The spots are typically linked to specific programming. For example, television advertisers purchase time during advertising breaks of specific programs, thereby targeting viewers attracted to the program during which one or more spots are purchased. Similarly, advertisers can purchase advertisement spots from internet or on-line service providers (ISPs and OSPs) and/or World Wide Web pages, thereby targeting users of a particular ISP/OSP and users of a particular Web page, respectively.

In recent years, computer-based advertising has standardized the "Web Banner" format which is static in nature in that an advertiser's spot is linked to, and embedded within, a specific Web page. However, viewers can easily "Scroll away" or ignore a banner spot. Another shortcoming of banner spots is that the duration of the impression is controlled by the viewer, who may click to another page before the banner is displayed.

Another shortcoming of the "Web Banner" format is that users can "turn off" graphics in their browser settings which eliminates the presentation of graphical advertisements. As a result, the advertiser is often charged for a "hit" or "impression" without any guarantee that the spot is viewed. Finally, a key problem facing Web advertising is the lack of any metric of efficacy on a demographic basis other than the inferred likely consumer of specific content. Unlike TV or radio advertising that have established rating and demographic evaluation organizations in place (e.g. Nielson ratings), the Web has no such reliable measurement process.

One scheme that attempts to break the link between advertising and programming is disclosed in U.S. Patent No. 5,794,210 entitled "ATTENTION BROKERAGE" (the '210 Patent). The '210 Patent discloses concepts referred to as "negatively priced information" and "orthogonal sponsorship." Negatively priced information requires a participant to actively choose to be involved in advertising and orthogonal sponsorship breaks the link between advertising spots and programming. In the advertising scheme disclosed in the '210 Patent, a user chooses to be subjected to advertising in order to receive an award. Thus, the '210 patent describes a system that is driven by individual user's explicit participation on a spot-by-spot basis. However, many people actively avoid advertisements by, for example, channel surfing during commercial breaks.

In general, the incentive to view an individual advertisement as the result of incentives provided in accordance with the '210 Patent will often be insufficient to achieve significant success. The scheme of the '210 Patent is best suited to the limited audience of active consumers of a specific product. However, this audience is not the primary target of traditional "brand imaging" mass market advertisers. Indeed, it is sponsored content (linked) associations and the repeated presentation of brand image messages that creates the "brand awareness" and "brand associations" that mass market advertisers seek. Because the scheme disclosed in the '210 Patent requires active participation to begin involvement, the distribution of participation may be less than desired by marketing parties, or cost per impression may be too high, or both.

What is needed is a method and apparatus to deliver highly targeted advertisement impressions on the basis of both demographic and content associations that are displayed for a controllable duration, and to dynamically monitor the effectiveness and "reach" of the advertising.

#### SUMMARY OF THE INVENTION

A method and apparatus for micro-targeted advertising is described. An advertisement profile is dynamically determined for a user of a networked device at initial log-in. In one embodiment, this profile can include both user demographic data, and

terminal advertisement requirements and/or restrictions. An advertisement placement script is generated based, at least in part, on the user's advertisement profile and the time of log-in, from a pool of active spots. In one embodiment, the script is used to determine the target location, placement order/sequence, placement duration, and presentation/modification/update trigger events for one or more advertisement spots. One or more advertisements are displayed to the user of the networked device. An active script can be modified, re-ordered, updated, or completely re-generated and replaced during a user session either by a scripted trigger event or via an external message from the remote server.

### BRIEF DESCRIPTION OF THE DRAWINGS

The present invention is illustrated by way of example, and not by way of limitation in the figures of the accompanying drawings in which like reference numerals refer to similar elements.

**Figure 1** is one embodiment of a computer system suitable for use with the present invention.

**Figure 2** is one embodiment of a network configuration suitable for use with the present invention.

**Figure 3** is one embodiment of a network operations center coupled to a network suitable for use with the present invention.

**Figure 4** is an entity relationship model suitable for use with the present invention.

**Figure 5** is a flow diagram for generating a micro-targeted advertising script according to one embodiment of the present invention.

**Figure 6** is a layout of a graphical user interface according to one embodiment of the present invention.

**Figure 7** is a flow diagram for modifying, deleting, or adding an advertising profile according to one embodiment of the present invention.

**Figure 8** is a flow diagram of an advertisement script running within a client application according to one embodiment of the present invention.

## DETAILED DESCRIPTION

A method and apparatus for micro-targeted advertising is described. In the following description, for purposes of explanation, numerous specific details are set forth in order to provide a thorough understanding of the present invention. It will be apparent, however, to one skilled in the art that the present invention can be practiced without these specific details. In other instances, structures and devices are shown in block diagram form in order to avoid obscuring the present invention.

Reference in the specification to “one embodiment” or “an embodiment” means that a particular feature, structure, or characteristic described in connection with the embodiment is included in at least one embodiment of the invention. The appearances of the phrase “in one embodiment” in various places in the specification are not necessarily all referring to the same embodiment.

The present invention provides a method and apparatus for micro-targeting advertising to users of networked devices. The advertising possibilities provided by the present invention are referred to as “micro-targeted” because the architecture of the present invention allows for targeting advertising more narrowly, and therefore more effectively, than the prior art. In addition, the present invention describes a system that is distributed and script based rather than transaction based as in the prior art.

In one embodiment, advertising scripts are dynamically generated based on information related to the specific user of a specific networked device (e.g., terminal, workstation). By determining an advertising audience on a user-by-user basis, the architecture of the present invention provides selective targeting of advertising content. The advertisement script(s) are used for advertisement spot sequencing and scheduling as well as the programming of user initiated or time based trigger events. Scripts can be reordered, re-sequenced, updated or re-generated in response to a modification/trigger event such as a specific time, user action or external message.

**Figure 1** is one embodiment of a computer system suitable for use with the present invention. The computer system of Figure 1 can be used in various capacities with the



present invention. For example, the computer system can be a terminal used by a user to access local or remote resources, the computer system can be a server providing remote access to a resource, or the computer system can be a proxy server providing access to remote computer systems.

Computer system 100 includes bus 101 or other communication device for communicating information and processor 102 coupled to bus 101 for processing information. Computer system 100 further includes random access memory (RAM) or other dynamic storage device 104 (referred to as main memory), coupled to bus 101 for storing information and instructions to be executed by processor 102. Main memory 104 also can be used for storing temporary variables or other intermediate information during execution of instructions by processor 102. Computer system 100 also includes read only memory (ROM) and/or other static storage device 106 coupled to bus 101 for storing static information and instructions for processor 102. Data storage device 107 is coupled to bus 101 for storing information and instructions.

Data storage device 107 such as a magnetic disk or optical disc and corresponding drive can be coupled to computer system 100. Computer system 100 can also be coupled via bus 101 to display device 121, such as a cathode ray tube (CRT) or liquid crystal display (LCD), for displaying information to a computer user. Alphanumeric input device 122, including alphanumeric and other keys, is typically coupled to bus 101 for communicating information and command selections to processor 102. Another type of user input device is cursor control 123, such as a mouse, a trackball, or cursor direction keys for communicating direction information and command selections to processor 102 and for controlling cursor movement on display 121.

Computer system 100 further includes network interface 130 to provide access to a network, such as a local area network. One embodiment of the present invention is related to the use of computer system 100 to provide all or a portion of an incentive points management scheme. According to one embodiment, dynamic incentive points management is performed by one or more computer systems in response to processor(s) executing sequences of instructions contained in memory.

Instructions are provided to memory from a storage device, such as magnetic disk, a read-only memory (ROM) integrated circuit, CD-ROM, DVD, via a remote connection (e.g., over a network via network interface 130), etc. In alternative embodiments, hard-wired circuitry can be used in place of or in combination with software instructions to implement the present invention. Thus, the present invention is not limited to any specific combination of hardware circuitry and software instructions.

**Figure 2** is one embodiment a network configuration suitable for use with the present invention. The configuration of Figure 2 is described in terms of both land based communications and satellite communications; however, the manner of communication is not central to the present invention. Therefore, the present invention is applicable to any interconnection of devices that provide access to local and remote resources.

Wide area network 200 provides an interconnection between multiple local area networks (e.g., 220 and 230), individual terminals (e.g., 260) and one or more network operations centers (e.g., 250). In one embodiment, wide area network 200 is the Internet; however, any wide area network (WAN) or other interconnection can be used to implement wide area network 200.

Terminal 260 is an individual terminal that provides access to network resources as well as local resources for a user thereof. In one embodiment, terminal 260 is a personal computer connected to wide area network 200 via a modem, a wireless connection, etc. Alternatively, terminal 260 can be a set-top box such as a WebTV™ terminal available from Sony Electronics, Inc. of Park Ridge, New Jersey, or a set-top box using a cable modem to access a network such as the Internet. Similarly, terminal 260 can be a “dumb” terminal or a thin client device such as the ThinSTAR™ available from Network Computing Devices, Inc. of Mountain View, California.

Local area network 220 provides an interconnection of devices at a local level. For example, local area network 220 can interconnect multiple computers, printers, and other devices within one or more buildings. Local area network 220 is coupled to wide area network 200. Similarly, local area network 230 provides an interconnection of devices.

However, local area network 230 is coupled to satellite communications devices 240 as well as wide area network 200.

Network operations center 250 is coupled to wide area network 200 and provides access to network resources for terminal 260, local area network 220 and local area network 230. Communication between network communications center 250 and either terminal 260 or local area network 220 is accomplished by wide area network 200. As described in greater detail below, network operations center 250 and local area network 230 communicate via wide area network 200 and/or satellite communications devices 240.

In one embodiment network operations center 250 includes multiple servers (not shown in Figure 2) that provide access to network and other resources. For example, network operations center 250 can include a Web proxy server that provides access to the World Wide Web (WWW, or the Web) for devices of local area network 220, local area network 230 and terminal 260. Network operations center 250 can also include other devices, such as a middleware server or a file server that provide information to devices coupled to network operations center 250.

In one embodiment, information is communicated between network operations center 250 and local area network 230 via uni-cast, multicast or broadcast satellite communications devices 240, which includes necessary components to provide communications between network operations center 250 and local area network 230. In one embodiment, satellite communication are accomplished using Transmission Control Protocol/Internet Protocol (TCP/IP) embedded within a digital video broadcast (DVB) stream; however, alternative communication protocols can be used. In one embodiment, satellite communications are bi-directional. Alternatively, if satellite communications are uni-directional, wide area network 200 can be used to provide a hybrid, asymmetric bi-directional communications system such as the SkySurfer™ platform available from Gilat Satellite Networks, Inc. of McLean, Virginia.

**Figure 3** is one embodiment of a network operations center coupled to a network suitable for use with the present invention. With respect to description of Figure 3, wide area network 200 and satellite communications devices 240 are implemented as described

above in Figure 2. Notwithstanding being described as including certain types of servers and other devices, network operations center 250 can include different or additional components as well as multiple components, for example, multiple Web servers. Each server can be one or more software and/or hardware components.

Network operations center (NOC) 250 provides resources to local area networks and individual terminals (not shown in Figure 3) as well as a gateway to a larger network such as the Internet. Thus, network operations center 250 can be used to provide a controlled set of resources while being part of a larger network. This is particularly advantageous in situations where users of the local area networks are somewhat homogenous. For example, students in similar grade levels, professionals, and other groups.

Additional uses and details of the network of Figure 2 and the network operations center of Figure 3 can be found in U.S. Patent application number 09/216,016 (P001), entitled "OPTIMIZING BANDWIDTH CONSUMPTION FOR DOCUMENT DISTRIBUTION OVER A MULTICAST ENABLED WIDE AREA NETWORK" and U.S. Patent application number 09/216,018 (P002), entitled "A METHOD AND APPARATUS FOR SUPPORTING A MULTICAST RESPONSE TO A UNICAST REQUEST FOR DATA," both of which are assigned to the corporate assignee of the present invention.

NOC router 300 is coupled to NOC LAN 305 and provides routing and firewall functionality for the servers and other components of network operations center 250. NOC router 300 can be implemented in any manner known in the art. In one embodiment, database 360 is coupled to NOC LAN 305. Database 360 can be used, for example, to store information about authorized users of associated local area networks, or to store information about resources that are available on each terminal connected to the network.

Database 360 can also be used to store statistics about network usage, advertisement media assets to be downloaded to devices of the local area networks, etc. In one embodiment database 360 is used to store placement profiles associated with various advertisements as well as user profile information for authorized users of the network.

Data store 365 represents data stored by database 360 and can be one or more physical devices and logical data tables. In one embodiment, data store 365 is used to maintain placement profiles and user profiles.

Master proxy server 370 is also coupled to NOC LAN 305 to provide World Wide Web resources to devices of the connected local area network(s) or individual terminals. In one embodiment web server 310 is a Hypertext Markup Language (HTML) and/or Secure Sockets Layer (SSL) server. Of course, Web server 310 can be another type of server (e.g., FTP, Multicast "carousel" data broadcast server, reliable file multicast server, UNIX host, media server, etc.). Web cache 320 is used to store Web resources (e.g., Web pages) that are most often accessed, most recently accessed, etc. In one embodiment, Web cache 320 stores a predetermined set of Web resources that are provided to the local area networks. In a school network environment, the cached Web resources can be, for example, a preapproved set of Web pages. In one embodiment all or a portion of the contents of Web cache 320 are replicated on local networks.

Middleware server 330 manages database applications and interfaces with other servers in network operations center 250. For example, middleware server 330 can determine which users have access to Web server 310 and grant access accordingly. Middleware server 330 can also dynamically generate a Web page, graphic or chart based on database content. In addition, middleware server 330 can acquire and process/evaluate data from a plurality of database servers and logical databases. In one embodiment, middleware server 330 is central in the micro-targeted advertising scheme of the present invention.

Middleware server 330 can also be replicated on local area networks, such as local area networks 220 and 230 of Figure 2, while providing the micro-targeted advertising scheme of the present invention. Middleware server 330 can be executed in any sufficient manner known to the art, for example, WebObjects® available from Apple Computer, Inc. of Cupertino, California, or a similar database middleware product. Alternatively, each client and server can act as its own middleware device by interfacing with the database servers on their own behalf though existing database interfacing technologies such as the

Common Object Request Broker Architecture (CORBA) as defined by Object Management Group, Inc. of Framingham, Massachusetts or COM+ available from Microsoft Corporation of Richmond, Washington.. Operation of middleware server 330 in connection with the present invention is described in greater detail below.

Application server 340 provides applications programs to devices coupled to network operations center 250. Application server 340 conceptually represents two different types of servers. Application server 340 can be part of a client-server architecture where the server provides data to a client (e.g., HTML server, e-mail server, bulletin board server). Application server 340 can also be a software distribution and management server for "stand alone" programs. Master proxy server 370 provides World Wide Web access to devices coupled to network operations center 250. Master proxy server 370 can be implemented in any manner known in the art.

**Figure 4** is one embodiment of an entity relationship model suitable for use with the present invention. In one embodiment, each entity of Figure 4 has an associated set of privileges, both for local access (e.g., the device being used) and for network privileges. Of course, other entities as well as a different number of entities and entity class relationships can also be used. In one embodiment, within the various entity levels, multiple classes of users (e.g. system administrators, managers, local administrators, registered users, and guests.) can be defined where each class of users can have different default and maximum access privileges. Both the default and the maximum access privileges can be used to determine which advertisements are available to a particular user. Default and maximum privilege can be applied to entities as well as users.

Root entity 400 represents the lowest level (greatest amount) of access available to an entity. User(s) 405 associated with root entity 400 can be, for example, a system administrator at network operations center 150. In one embodiment, the number of users 405 associated with root entity 400 is relatively small because of the amount of access to the complete network. In another embodiment, all users of all classes not associated with a specific WAN location (e.g. remote or home users) are associated with root entity 400.

Users of any class can access and use terminals in any location that allows use by that class (e.g. only system administrators can log-in from the network operations center).

Subnet entity 410 represents a higher level (lesser amount) of access as compared to root entity 400. User(s) 415 associated with subnet entity 410 have access to portions of the complete network. Subnets can be divided by region (e.g., South America), language (e.g., English), ethnicity (e.g., Chinese). Country entity 420 allows user(s) 425 access to the portion of the complete network within a specific country.

In one embodiment, each sub-entity can be individually configured within the set of privileges provided by the parent entity. If left unmodified, however, each sub-entity inherits the set of privileges of the parent entity. Thus, users of a given class associated with each entity can restrict, but not enlarge the set of privileges provided by a specific entity for that class. Some entities may not support or allow use by certain classes of users.

State entity 430 allows user(s) 435 access to portions of the network within a specific state/province. County entity 440 allows user(s) 445 access to portions of the network within a specific county. District/area entity 450 allows user(s) 455 access to a district (e.g., school district) portion of the network within a specific state. Location entity 460 allows user(s) 465 access to a portion of the network within a specific location (e.g., a specific school). Terminal entity 470 is the lowest level entity allowing the most restrictive access of the entities described with respect to Figure 4 for users of each class. In one embodiment, a class of users can be defined at any level of entity and are valid at all lower entity levels.

In one embodiment maximum access privileges are defined by the entity to which a class of user belongs. For example, the default and maximum terminal privileges are defined by the terminal's location entity (e.g., a branch office in which the terminal resides). Thus access privileges are controlled in a hierarchical manner. Further description and uses of the entity model of Figure 4 are disclosed in U.S. Patent application number 09/213,614 entitled "AN ENTITY MODEL THAT ENABLES PRIVILEGE TRACKING ACROSS MULTIPLE TERMINALS," which is assigned to

the corporate assignee of the present invention and incorporated by reference herein. In one embodiment, session privileges are determined based on the intersection of user privileges and terminal privileges. Session privileges can be used to determine a user's ad profile during a session on a specific terminal.

**Figure 5** is a flow diagram for generating a micro-targeted advertising script according to one embodiment of the present invention. A user's advertisement profile is determined at 500. In one embodiment, the user profile is determined for a specific user at a specific point in time on a specific terminal. The user profile is determined based on one or more of the following: temporal factor(s) (i.e., what time it is), demographic factor(s) (i.e., who the user is), interest profile(s) (i.e., what the user likes), modification/trigger event(s) (i.e., under what conditions or in response to what actions the active script is changed or replaced), each of which is described in greater detail below.

Temporal factors can include any period of or point in time, for example, a holiday (e.g., Christmas, Hanukkah, Martin Luther King, Jr. Day), a day of the week (e.g., Friday), a specific date (September 11), a specific month (e.g., March), a specific time of day (e.g., 11:45 a.m. to 1:00 p.m. every day, 8:30 a.m. on the first Tuesday of each month, 4:45 p.m. today), a season (e.g., summer), a specific week of the year (e.g., week 46), or a user-specified event (e.g., an anniversary). Combinations of temporal factors can be used (e.g., 1:00 p.m. on Christmas Eve). Other temporal factors can also be used. Temporal factors are used both as trigger events in an active script, or as "run period" parameters for placements. For example, an advertiser can run a spot for the month of December (run period) and only have the ad appear at 12:00 noon (trigger event.)

Demographic factors include, for example, geographic location (e.g., California, Japan, London, or any ZIP or postal code), age, gender, education, preferred language(s), income, family size and make-up, height, weight, ethnicity, class of user. Combinations of demographic factors can be used (e.g., 17-18 year old males from the southeast United States). Other demographic factors can also be used. User interests, whether observed or stated, can be used as part of the user's advertisement profile.



In one embodiment, data for generating an advertisement profile for a user is obtained by a middleware server in a network operations center. Information related to authorized users that is used to generate the user's advertisement profiles is stored in a user database in the network operations center along with other user account information. When an authorized user logs into the network, the middleware server combines user data and session privilege data (e.g. advertisement exclusions or requirements related to the terminal the user is using.) to generate that user's advertisement profile for the session that is about to commence. The advertisement profile contains all the information needed to select matching advertisements from the set of active placements stored in the advertisement placement database.

An advertisement script is dynamically generated at 510. The advertisement script allocates advertisement spots to one or more advertisers. In one embodiment the advertisement script is generated by a middleware server at a network operations center. In another embodiment, a separate ad server creates this script. The middleware server queries one or more advertisement databases to determine whether a user's advertisement profile matches any available placement parameters for any active spots. When an advertiser adds a new, or modifies existing placement parameters, the new or modified placement parameters are stored in the advertisement database. "Programming" of placement parameters includes defining preferred and excluded demographic targets for a spot, required and/or optional content and temporal triggers, the location and format of the advertisement's media assets, duration of the spot and/or any other parameter (e.g. rating level, subject matter, maximum number of impression per user session etc.). Placement parameters are described in greater detail below.

The middleware server determines active spots that match the user's advertisement profile, the middleware server analyzes placement parameters for the spots and compiles a script for that user's session. In general, the middleware server divides the advertisement spots into two classes, "rotation" spots and "triggered" spots. Advertisements in rotation are presented in sequence until a trigger event inserts another advertisement into rotation or otherwise re-orders or regenerates the script, or the maximum impression for a single

session for a specific spot removes it from rotation. Triggered spots are displayed if a predetermined trigger event occurs during a user session. In one embodiment, the middleware server inserts into the script the closest storage location to the user's current terminal for assets for the spots in the script (e.g. a local server or specific directory on the hard disk of the user's current terminal). The middleware server and/or the advertisement database(s) can be replicated on a local network.

Advertisement assets are acquired based on the script at 520. In one embodiment, data defining one or more advertisements (advertisement assets) are stored in an advertisement asset database in the network operations center. Data (e.g., images, animations, audio files, video files, HTML files) from the advertisement asset database are retrieved and forwarded by the middleware server or a separate advertisement server based, at least in part, on the advertisements included the script for a particular user.

In one embodiment, some or all advertisement assets are replicated on a server connected to the local area network on which the user's active terminal is connected. Similarly, the advertisement assets could be replicated on the hard disk in the computer terminal the user is using. In another embodiment, the advertisement assets are transferred by the middleware or advertisement server to the user's client terminal in sequence during idle time, or served remotely.

The one or more advertisements are displayed to the user at 530. Display of advertisements is described in greater detail below. In one embodiment the advertisements are displayed in a window within a graphical user interface of any application that supports the advertisement script. One embodiment of a graphical user interface suitable for use with the present invention is described in greater detail below with respect to Figure 6; however, other display layouts can be used to display advertisements according to the present invention.

If a modification/trigger event does not occur at 540, the display of advertisements continues. A modification event is an event that causes changes in placement parameters, temporal factors, demographic factors and/or interest profiles. For example, time changes

can cause the modification of an active script if an advertisement in an active script includes a time based trigger .

If a modification/trigger event occurs at 540 and a timeout has not occurred at 550, a new advertisement script is generated, or the existing script is re-ordered or re-sequenced and advertisements are displayed accordingly. A timeout can occur, for example, through user inactivity or user logout.

**Figure 6** is a layout of a graphical user interface according to one embodiment of the present invention. In one embodiment user interface 600 provided to a user of a terminal is configured based on session access privileges granted to the user. In one embodiment user interface 600 provides the gateway by which a user accesses both local and remote resources.

In one embodiment browser controls and tool bar 610 provide graphical “buttons” that allow a user to perform certain operations. Browser controls and tool bar 610 can include, for example, “back,” “forward,” and “stop” buttons for browser control as well as “save,” “open,” and “print” buttons for general application control. Additional, fewer, and/or different buttons and commands can be included in browser control and tool bar 610.

In one embodiment applications menu/switcher and edit menu 620 provides application selection control and general editing control for multiple applications. For example, applications menu/switcher and edit menu 620 can include a list of all local and/or remote applications available to the user of the terminal on which user interface 600 is displayed. From the applications menu, the user can select an application to use. The edit portion provides general editing commands such as “cut,” “copy,” and “paste” for the user to move data between available applications.

In one embodiment points meter 630 provides a summary of incentive points or other points schemes available to the user. An incentive points management scheme is described in greater detail in U.S. Patent application number 09/213,238 (P004) entitled “INCENTIVE POINTS MANAGEMENT,” which is assigned to the corporate assignee

of the present invention. Incentive points can be awarded to a user for clicking on, or otherwise interacting with, an advertisement.

Browser and application window 640 provides space for the user to interact with the resources accessed. For example, if a word processing application is being used, browser and application window 640 displays the word processing application window when the application is activated. Thus, the user can switch between applications and move data between applications that are available on the terminal using menu/switcher and edit menu 620 should the current user have sufficient privileges to do so on the current terminal. If a browser application is being used, browser and application window 640 is used as a browser window.

Dynamic advertising can be related to actions taken with the active browser/application in window 640. For example, if a user has misspelled words in excess of a predetermined rate, an advertisement for a spell checking application or typing tutor can be inserted into the active advertisement script, or if a user accesses an art instruction Web site, an advertisement for an art store can be inserted into the active advertisement script. Of course, other types of advertisements can be inserted/deleted from the active advertisement script based on user actions.

In one embodiment feature and channel buttons 660 provide access to features (e.g., e-mail, chat rooms, message boards, bookmarks) and channels (e.g., educational topics, news topics) available to the user. Feature and channel buttons 660 are configured based on the session privileges such that only the features and channels available to or associated with the user appear. Feature and channel buttons control what is displayed in browser and applications window 640.

In one embodiment, dynamic billboard 670 provides advertising according to the present invention and/or other information to the user while the user is using an application or browser. Of course dynamic billboard advertising space 670 can be used for other purposes such as, for example, video conferencing, instant messaging, distance learning/instruction, news updates, or other uses.

The dynamic billboard (DBB) 670 displays advertisements according to the advertisement script. In one embodiment, DBB 670 is an HTML window (e.g. its own browser) capable of displaying text, graphics, animations, videos, digital audio, embedded programs such as Java applets or ActiveX programs, forms, etc. The script controls what is presented in DBB 670 and when, and receives and processes input from the other windows of the application DBB 670 is integrated into (e.g. what Web page or application is currently in browser and applications window 640). Other ad containers can be used, for example, message window 650, or a background audio player, or an interstitial engine that runs in the Web browser window that presents advertisements from the local hard disk while pages are being loaded from the Web.

In alternative embodiments, advertisements are presented in a different manner. For example, advertisements can be presented as a banner, a message, an audio advertisement. Such an embodiment can be implemented by including an advertisement classification in the advertisement script and/or placement information the provides appropriate information describing the advertisement(s) to be presented. Session privileges can also be used to determine advertisement formats supported. Multiple scripts can also be generated for use with multiple advertisement classes and/or locations.

In one embodiment, message window 650 can display messages to the user. For example, an instructor can send messages to students, a user of one terminal can send a message to a user of another terminal, a system administrator can send messages to a user or a group of users. Message window 650 can be used for messages that are independent of browser and applications window 640, so long as such messages are allowed by the current session privileges.

**Figure 7** is a flow diagram for modifying, deleting, or adding an advertising profile according to one embodiment of the present invention. User authorization is checked at 700. In one embodiment the entity model of Figure 4 is used to provide user authorization to modify advertising placement profiles. For example, a specific login name and password combination can be required to add a new placement profile or modify an

existing advertising placement profile. Additionally, predetermined terminals in specific locations may be required to modify advertising placement profiles.

An authorized user is allowed to create and/or modify placement parameters for one or more advertisements. An advertiser may wish to expand the profile used to determine advertisement spots in order to increase the number of impressions obtained. For example, an advertiser may wish to include males in a previously female-only placement profile or expand to new regions as their product or service becomes available there. A user can create a new set of placement parameters (e.g. run a new ad) in a similar manner.

The new/modified placement parameters are stored at 720. In one embodiment, the placement parameters are stored in an advertisement database in a network operations center. A middleware server receives the new/modified placement parameters and stores the placement parameters in the appropriate database. The changes and/or database can be replicated to one or more local networks.

Affected scripts are updated, if appropriate, at 730. Scripts are updated if the advertiser desires an immediate change in advertising; however, immediate updates are not necessary. In one embodiment, the middleware server or advertisement server sends a message to all active script sessions to update to all appropriate active scripts. An active spot in an active script can be modified without re-generating the entire script. Alternatively, changes to advertisement placement take effect only for newly generated scripts. In one embodiment, updates to scripts are applied periodically (e.g., daily, weekly), rather than immediately.

**Figure 8** is a flow diagram of an advertisement script running within a client application according to one embodiment of the present invention. A client session is initiated at 800. A client session can be initiated, for example, by a user logging on at a terminal that the user is authorized to use. As a result of the session initiation, an advertisement script is dynamically generated as described above.

The client application receives an advertisement script for the session at 805. In one embodiment, the advertisement script is received from a middleware or advertisement

server in a network operations center. Alternatively, the script can be received from a local server or other device.

The client application executes the script at 810 by displaying advertisements according to the placement, order, duration, and other information in the advertisement script. The client application obtains advertisement assets from one or more sources (e.g., remote server, local server, internal hard drive) indicated by the script.

During execution of the advertisement script, the client application determines a next advertisement to display at 815. In one embodiment, the advertisement selected is determined based on input and output trigger/modification events. For example, if a user selects a remote resource (e.g., Web page) associated with an advertisement in the script, the script ordering may be modified.

The client application or the middleware server determines whether any events have occurred that are trigger events at 820. If so, the trigger event is evaluated and the appropriate action is taken at 845. For example, an advertisement can be inserted in, or deleted from, the rotation script, the script can be paused, or timing can otherwise be modified. In one embodiment, the script pauses at 840 while script information and/or placement parameters are updated based on the modification/trigger event. Execution of the script continues at 815.

If evaluation of the trigger at 845 indicates that the session is ending, the session ends at 850. In one embodiment, after the session ends, the advertisement log is archived at 855. The advertisement log reports what advertisements were displayed during the session and other related information (e.g., the user's ID, the terminal's ID, if the user clicked on an advertisement, what trigger events occurred during the session). In one embodiment, the report is stored in a database in the network operations center. The report can be used to dynamically generate and aggregate effected advertising statistics, for example, to report demographic information, for billing purposes, etc.

Because the architecture of the present invention provides more detailed information about users to which advertisements are displayed, the present invention can also provide detailed reports based on the advertisement log. For example, the

advertisement log can indicate users, times, advertisement categories and other information related to advertisements that were successful (e.g., a user clicked on the advertisement, a user visited a particular Web page) or unsuccessful (e.g., a user changed his/her interest profile to avoid the advertisement). The more detailed reporting can be used to provide more economical and relevant pricing structures than would otherwise be available. For example, each placement parameter can have an associated price and/or billing rate.

If a trigger event does not occur at 820, the next advertisement in the rotation portion of the script is displayed at 825. The advertisement is displayed until the appropriate duration has expired at 830. In one embodiment, the hit/impression information is recorded at 835 at the end of the advertisement duration. A subsequent advertisement is then displayed at 815.

In the foregoing specification, the present invention has been described with reference to specific embodiments thereof. It will, however, be evident that various modifications and changes can be made thereto without departing from the broader spirit and scope of the invention. The specification and drawings are, accordingly, to be regarded in an illustrative rather than a restrictive sense.



CLAIMS

What is claimed is:

1. A method of micro-targeted advertising, the method comprising:  
determining, dynamically, an advertisement profile for a user of a networked device for a specific period of time;  
generating an advertisement spot placement script based, at least in part, on the user profile and one or more active placement profiles, the script to control presentation of one or more advertisement spots;  
displaying one or more advertisements to the user of the networked device, the advertisements based, at least in part, on the advertisement spot placement script; and  
generating, dynamically, a modified advertisement spot placement script in response to a trigger event.
2. The method of claim 1 wherein the script is based, at least in part, on at least one temporal factor.
3. The method of claim 2, wherein the at least one temporal factor comprises one or more of: a date, a time of day, a day of a week, a month of a year, a week of the year.
4. The method of claim 1 wherein the user profile is determined based on one or more demographic factors comprising: an age of the user, a geographical location of the user, a gender of the user, and an educational background of the user.
5. The method of claim 1 wherein the user profile is based, at least in part, on an interest profile of the user.

6. The method of claim 1 wherein the advertisement spot placement script is generated at a network operations center and transmitted to the client application the user is using at session log-on.

7. The method of claim 1 wherein a server to generate the advertisement spot placement script is replicated from a network operations center to a server connected to a local network to which the networked device is coupled.

8. The method of claim 1 wherein ad assets used for at least one of the one or more advertisements is stored on the networked device.

9. The method of claim 1 wherein ad assets used for at least one of the one or more advertisements is stored on a server connected to a local network to which the networked device is coupled.

10. The method of claim 1 wherein ad assets used for at least one of the one or more advertisements is stored at a network operations center.

11. A machine-readable medium having stored thereon sequences of instructions that when executed by one or more processors cause the one or more processors to:

determine, dynamically, a user profile for a user of a networked device at a specific point in time;

generate an advertisement spot placement script based, at least in part, on the user profile, the script to control presentation of one or more advertisement spots;

display one or more advertisements to the user with the networked device, the advertisements based, at least in part, on the advertisement spot placement script; and

generate, dynamically, a modified advertisement spot placement script in response to a modification event.

12. The machine-readable medium of claim 11 wherein the script is based, at least in part, on one or more temporal factors.

13. The machine-readable medium of claim 12, wherein the one or more temporal factors comprise one or more of: a date, a time of day, a day of a week, a month of a year, a week of the year.

14. The machine-readable medium of claim 11 wherein the user profile comprises demographic information including one or more of: an age of the user, a geographical location of the user, a gender of the user, and an educational background of the user.

15. The machine-readable medium of claim 11 wherein the demographic segment is based, at least in part, on an interest profile of the user.

16. The machine-readable medium of claim 11 wherein the advertisement spot placement script is generated at a network operations center.

17. The machine-readable medium of claim 11 wherein a server to generate the advertisement spot placement script is replicated from a network operations center to a server connected to a local network to which the networked device is coupled.

18. The machine-readable medium of claim 11 wherein ad assets used for at least one of the one or more advertisements is stored on the networked device.

19. The machine-readable medium of claim 11 wherein ad assets used for at least one of the one or more advertisements is stored on a server connected to a local network to which the networked device is coupled.

20. The machine-readable medium of claim 11 wherein at least one of the one or more advertisements is stored at a network operations center.

21. An apparatus for micro-targeted advertising, the apparatus comprising:  
means for dynamically determining a user profile for a user of a networked device for a specific period of time;  
means for generating an advertisement spot placement script based, at least in part, on the user profile, the script to place one or more advertisement spots;  
means for displaying one or more advertisements to the user with the networked device, the advertisements based, at least in part, on the advertisement spot placement script; and  
means for dynamically generating a modified advertisement spot placement script in response to a modification event.

22. The apparatus of claim 21 wherein the script is based, at least in part, on at least one temporal factor.

23. The apparatus of claim 22, wherein the at least one temporal factor comprises one or more of: a date, a time of day, a day of a week, a month of a year, a week of the year.

24. The apparatus of claim 21 wherein the user profile comprises demographic one or more of: an age of the user, a geographical location of the user, a gender of the user, and an educational background of the user.

25. The apparatus of claim 21 wherein the demographic segment is based, at least in part, on an interest profile of the user.

26. The apparatus of claim 21 wherein the advertisement spot placement script is generated at a network operations center.

27. The apparatus of claim 21 wherein a server to generate the advertisement spot placement script is replicated from a network operations center to a server connected to a local network to which the networked device is coupled.

28. The apparatus of claim 21 wherein ad assets used for at least one of the one or more advertisements is stored on the networked device.

29. The apparatus of claim 21 wherein ad assets used for at least one of the one or more advertisements is stored on a local network to which the networked device is coupled.

30. The apparatus of claim 21 wherein ad assets used for at least one of the one or more advertisements is stored at a network operations center.

31. A device coupled to a network, the device comprising:  
a bus;  
a memory coupled to the bus, the memory to store ad assets for use with one or more advertisements;  
a processor coupled to the bus, the processor to present one or more advertisements in response to a dynamically generated script; and  
a display device coupled to the bus, the display device to display the one or more advertisements selected for presentation by the processor;  
wherein the script is dynamically generated at the start of a user's ad session based, at least in part on an advertisement user profile for a user of the device.

32. The device of claim 31 wherein the script is generated by an external server and received by the client terminal via the network.

33. The device of claim 31 wherein at least a portion of the ad assets are received via the network.

34. The device of claim 31 wherein the script is based, at least in part, on at least one temporal factor.

35. The device of claim 34 wherein the at least one temporal factor comprises one or more of: a date, a time of day, a day of a week, a month of a year, a week of the year.

36. The device of claim 31 wherein the user profile demographic comprises one or more of: an age of the user, a geographical location of the user, a gender of the user, and an educational background of the user.

37. The device of claim 31 wherein the user profile is based, at least in part, on an interest profile of the user.

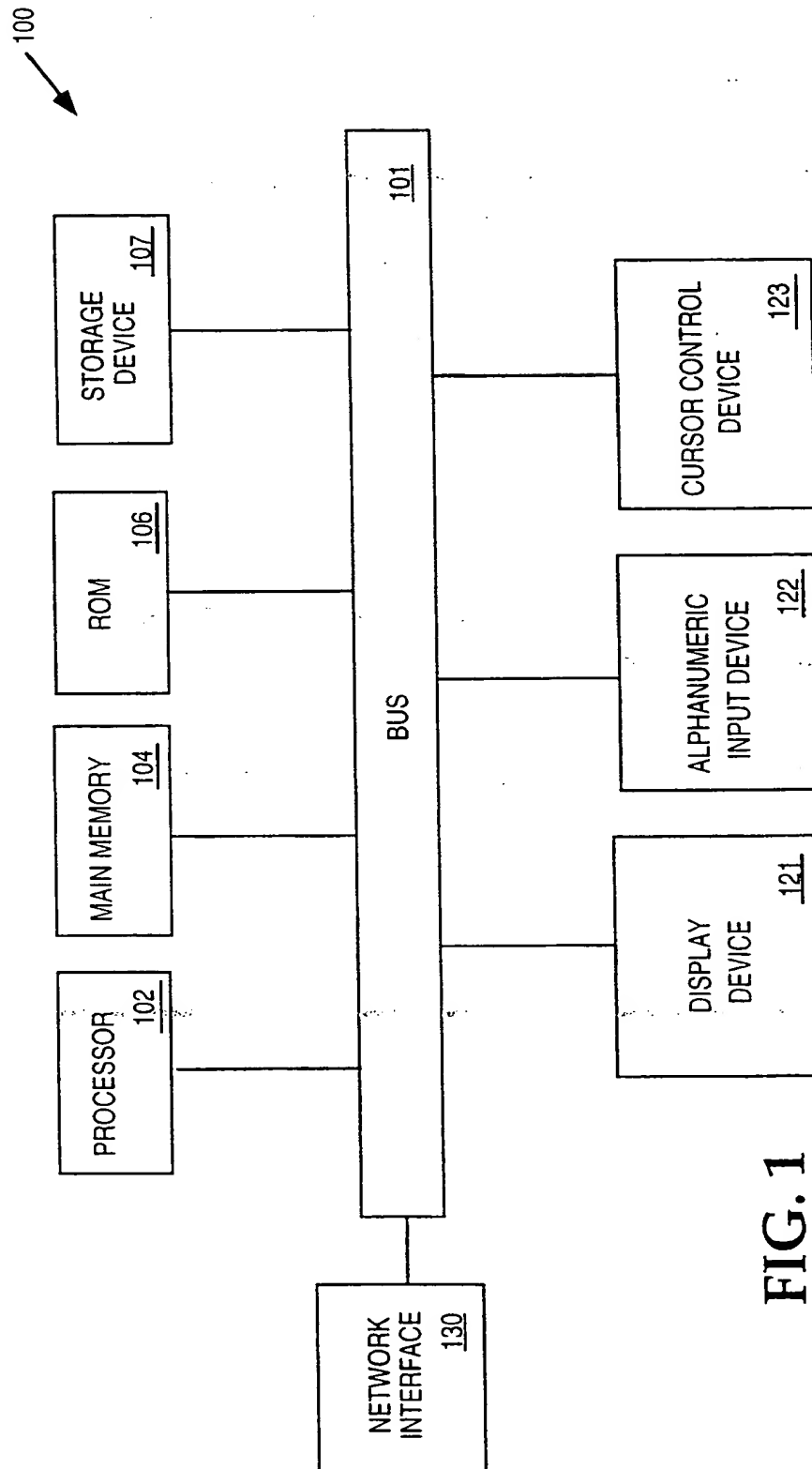


FIG. 1

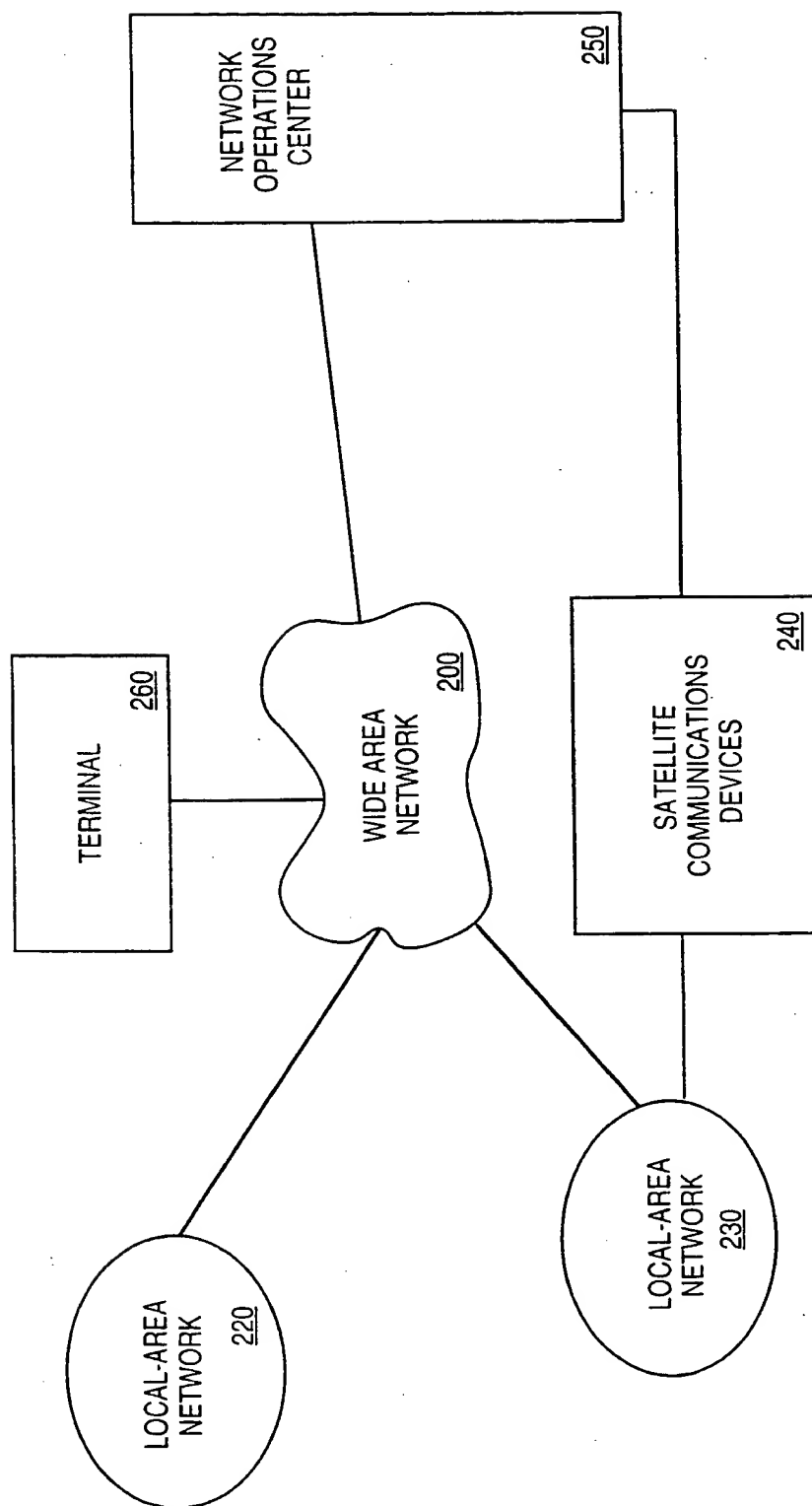


FIG. 2



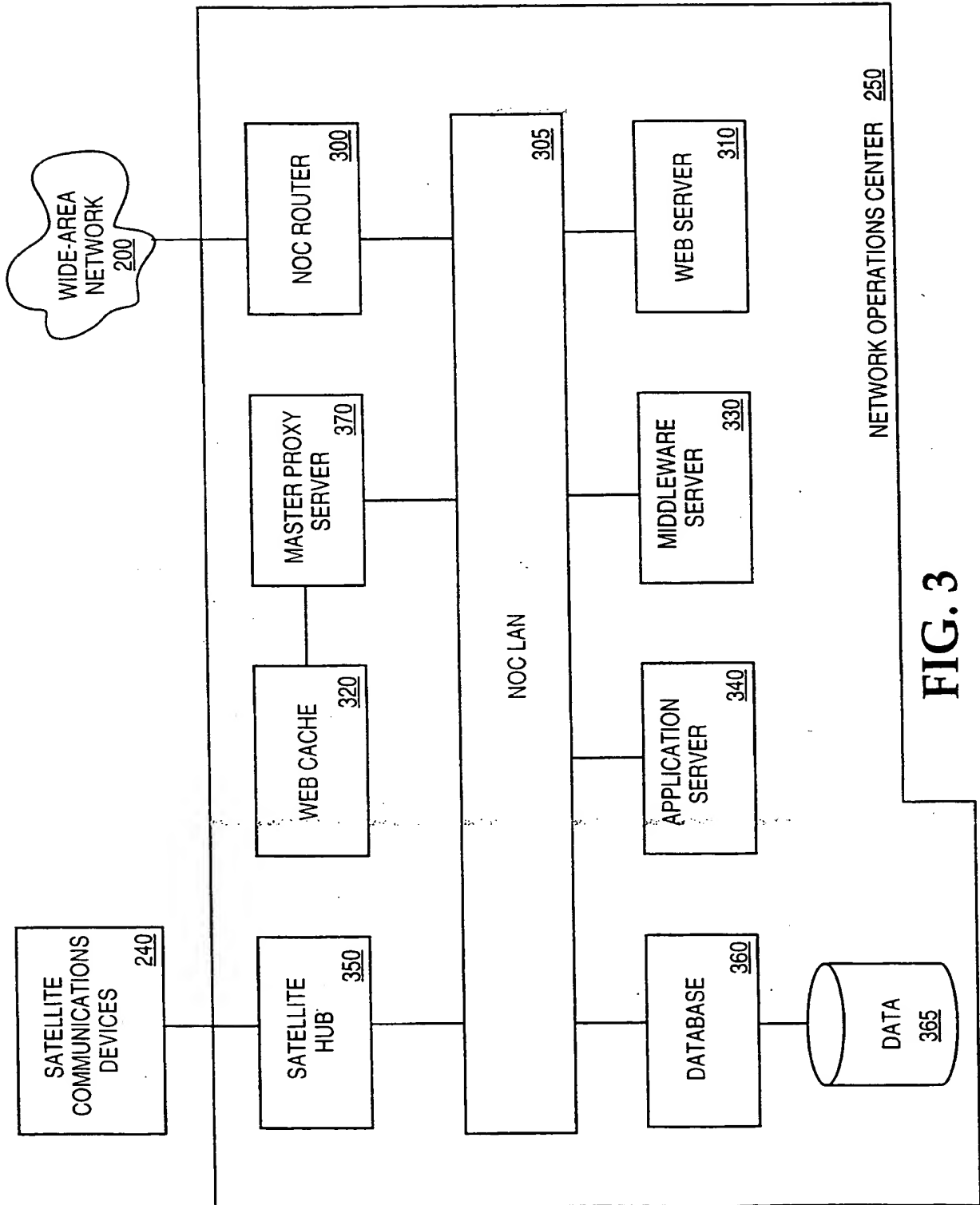


FIG. 3

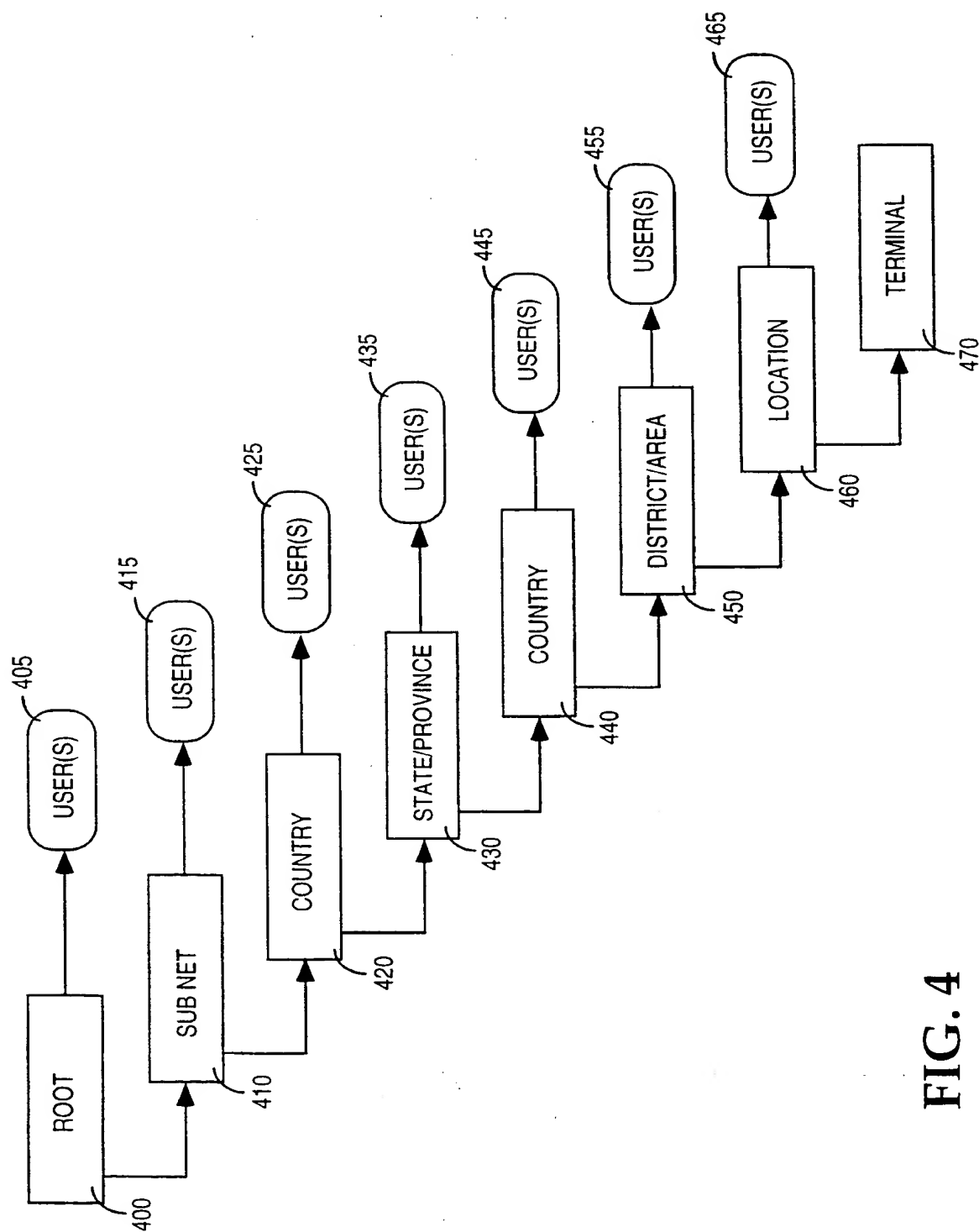
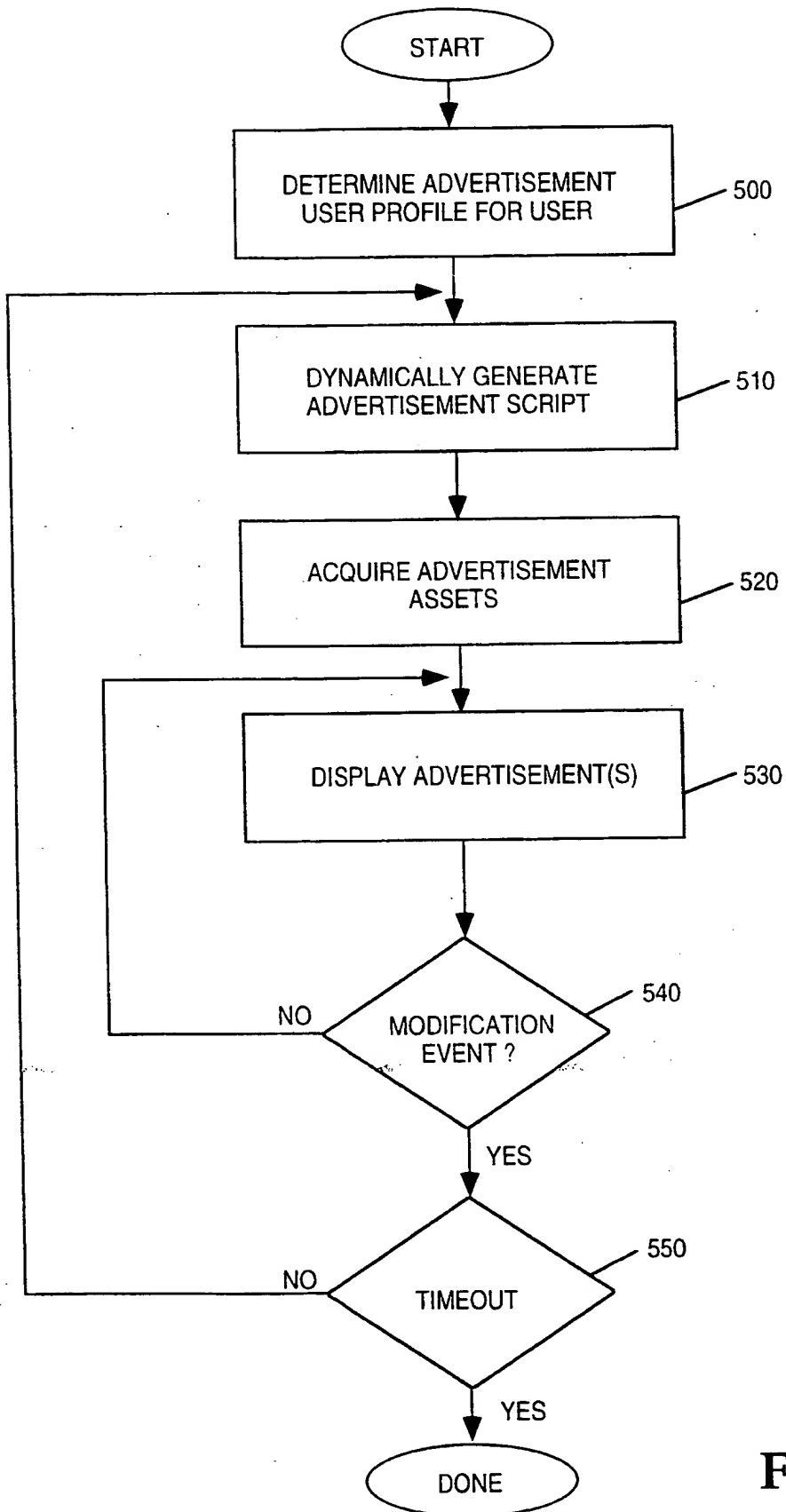


FIG. 4

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**FIG. 5**

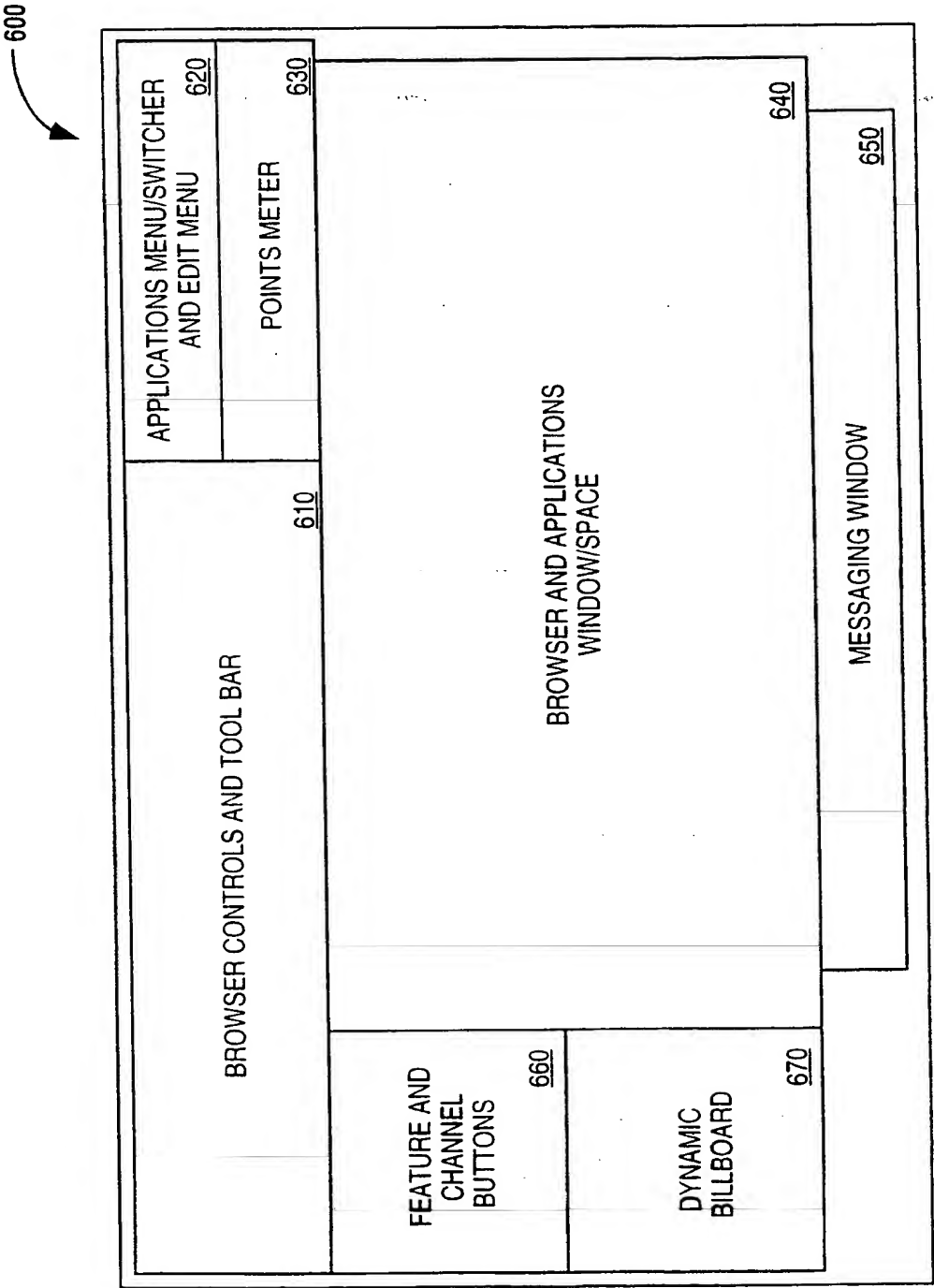


FIG. 6

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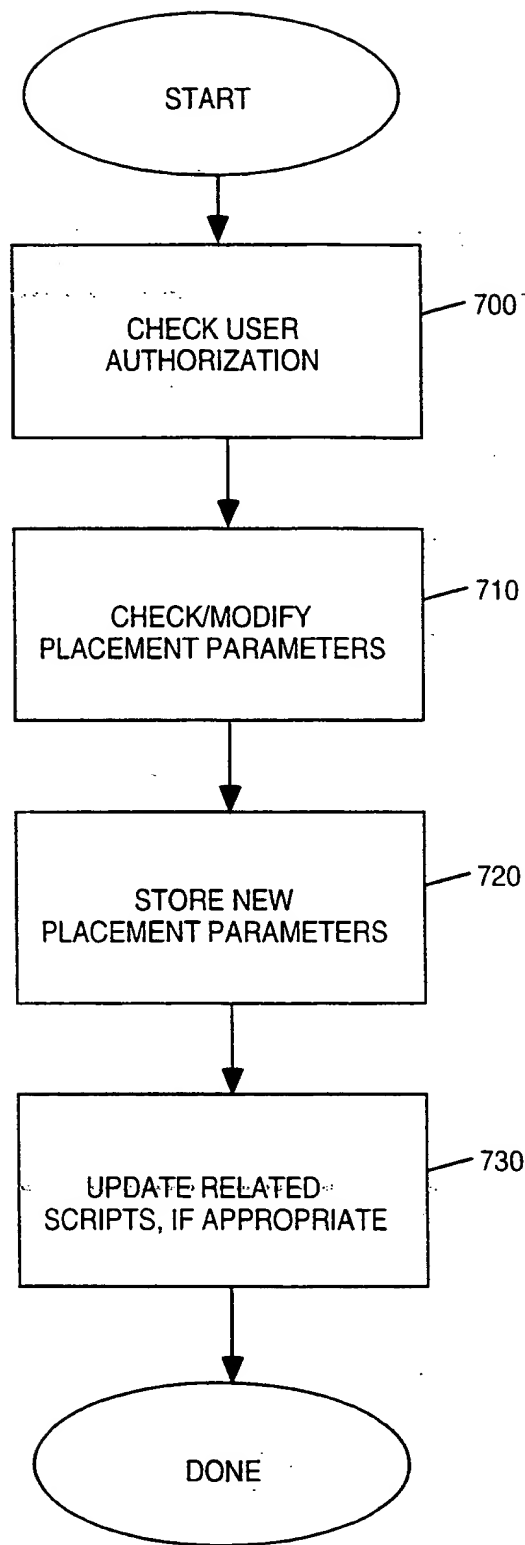


FIG. 7

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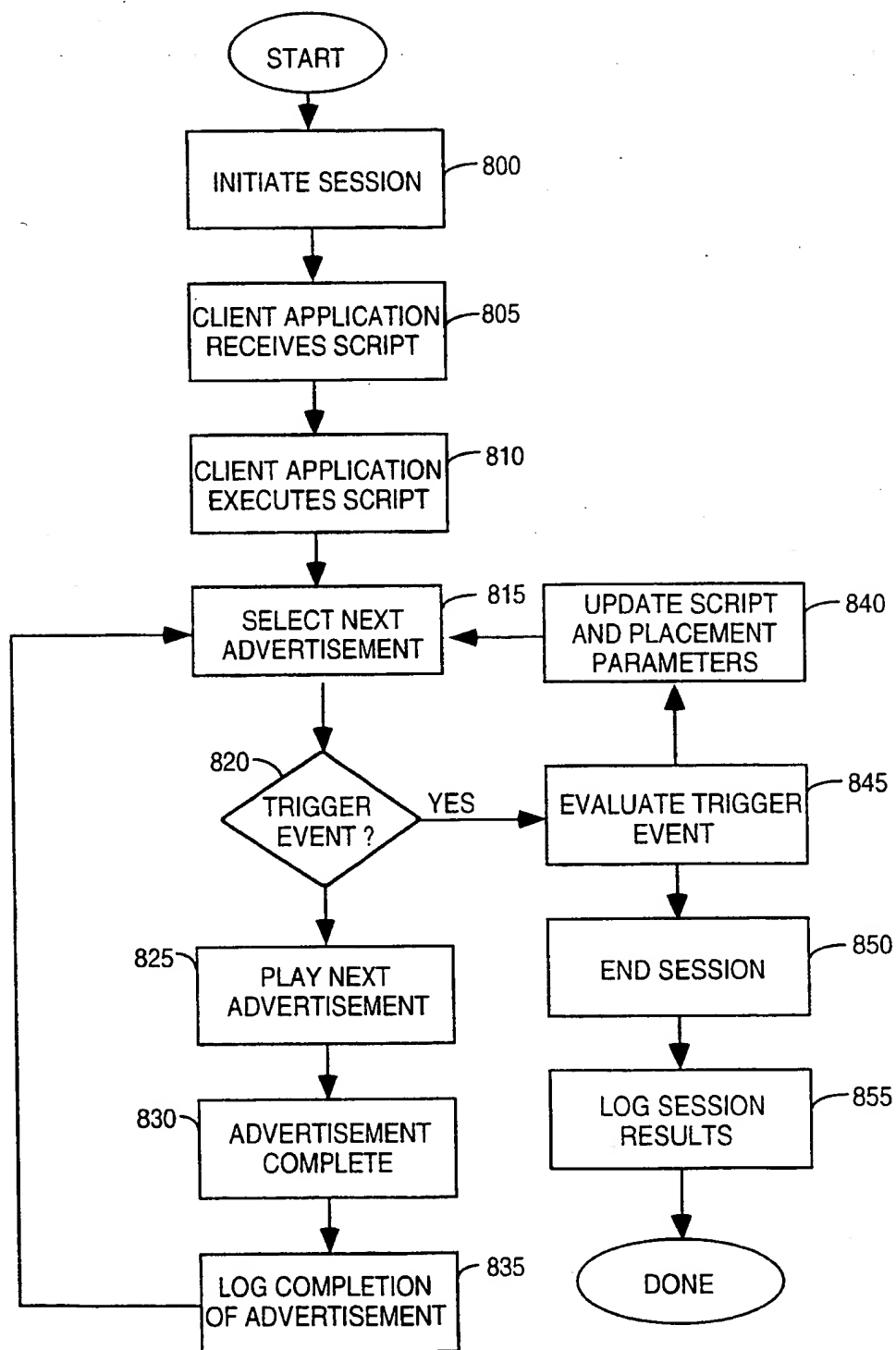


FIG. 8

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US99/30529

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) : Please See Extra Sheet.

US CL : 705/14; 709/218, 219

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. :

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X <u>Y</u>	US 5,740,549 A (REILLY et al) 14 April 1998, see entire document.	1-6, 8-16, 18-26 <u>7, 17, 27</u>

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:	*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
*A* document defining the general state of the art which is not considered to be of particular relevance	*X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
*E* earlier document published on or after the international filing date	*Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
*L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	*A* document member of the same patent family
*O* document referring to an oral disclosure, use, exhibition or other means	
*P* document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

13 FEBRUARY 2000

Date of mailing of the international search report

31 MAR 2000

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Form PCT/ISA/210 (second sheet)(July 1992)\*

INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US99/30529

A. CLASSIFICATION OF SUBJECT MATTER:  
IPC (6):

G06F 17/60, 17/60